FACULTY OF EXAMINERS.

REV. WILLIAM H. H. ADAMS, D. D.
PHILOSOPHY.

SUE M. D. FRY, Ph. D.
HISTORY.

CHARLES M. MOSS, Ph. D., Dean.
GREEK.

BRADFORD S. POTTER, Ph. D.
MATHEMATICS.

WILLIAM H. WAITE, M. A.
LATIN.

WILBUR W. THOBURN, M. A.
NATURAL SCIENCE.

EDMUND J. JAMES, Ph. D.
POLITICAL SCIENCE.

THE courses prescribed herein for the degrees of Ph. B., M. A., and Ph. D., were issued by the University, in a less perfected form, in the year 1874. The idea of thus putting regularly arranged work under the direction of the University within the reach of non-residents was borrowed from the London University. The purposes the scheme was intended to fulfill were two: to afford a tolerably full course of academic reading to those who cannot attend a college, and to offer an inducement to graduates to prosecute studies for the purpose of earning advanced degrees rather than to accept them by gift. The increasing number of those who seek entrance to the courses is evidence that the thought was well conceived. The Faculty assume the task of conducting the work from no interest except that of extending the benefits which systematic study of this character may bring to those who see fit to undertake it for the reasons mentioned. Under the regulations given below the courses are open to both classes of persons. The form in which they appear in this pamphlet differs somewhat from that of the two preceding issues, and matriculation hereafter will be for the present form only.

REMARKS CONCERNING THE COURSE FOR PH. B

The first is an academic course leading to the degree of Bachelor of Philosophy, and is intended to occupy about four years of study. This is not an arbitrary limit, but a student may complete it in such time as he may be able. It will be seen that a generous range of electives is allowed in order to meet the wishes of persons pursuing different branches of science. The course covers more or less of the following departments: Language, Mathematics, Natural Science, History, Mental, Moral, and Political Science, Rhetoric, Æsthetics, and Christian Evidences. All required studies of the first five units (indicated by I, II, etc.) must be taken, and those also of one of the remaining four units. It is left to the student to choose which one of them he will pursue. To this number must be added from the lists denominated Elective, or from the other language units, enough more to make the number forty. In the latter case at least the entire required part of the chosen unit must be taken.

No examination for entrance to this course is required. Still, it will be observed that considerable preliminary training is necessary in order to prosecute it successfully.

Certificates from reputable schools can be accepted for certain parts of the requirements for Ph. B.

On completion of this course the degree of Ph. B. will be conferred, and this will be considered sufficient preparation for entering upon one of the advanced courses. This does not apply to those who graduated from the course issued in 1874.

REMARKS RESPECTING THE COURSES FOR M. A. AND PH. D

Several courses are laid down leading to the degree of Doctor of Philosophy. Admission to any of them is possible only for those who have received the

degree of B. A., B. S., or Ph. B., as above, from this University, or from any college requiring equivalent work for graduation. On application for matriculation, proof of the possession of the preliminary degree must in all cases be furnished, either by presentation of diplomas or a certificate from the college whence the honor was obtained. M. A., except when received on examination, will not relieve a candidate from three of the six units required for Ph. D. The completion of three units of any course will entitle the person to the degree of M. A., and of six to that of Ph. D. A candidate for Ph. D. may pursue six units from one course, or three units from two courses. In every case the units must be consecutive, unless otherwise specified. The courses in Physics and Æsthetics stand for half the work required for Ph. D.

In some cases where certificates have been presented by persons who, for some good cause, were compelled to leave college when nearly through with a course for the Bachelor's degree, and who desired to read for the degree of Ph. D., the Faculty have prescribed work equal to the deficiency, upon the completion of which the person has been admitted to the Bachelor's degree, on condition of completing one of the advanced courses.

Properly endorsed certificates of post-graduate work completed will be accepted for its equivalent.

GENERAL REMARKS.

So far as texts are concerned, the courses are suggestive. Those laid down are works which, in comprehensiveness, will be taken as the standard for the preparation of examination work. Where substitutes are desired they should be submitted to the Faculty for approval.

Non-resident examinations are permitted under the following conditions: the times set are the months of May and November, before the first day of which requests for papers should be in the hands of the Dean, and all papers must be written before the first day of the following month. The questions are topical, and relate principally to general facts. Fairness and a proper test of one's knowledge are thus assured. Matriculants may request such papers as they choose, for the University does not prescribe what or what number of subjects are to be taken at the semi-yearly examinations.

Where examiners are not already appointed, candidates are at liberty to name, at the time the matriculation fee is paid, some person of known standing before whom they desire to sit, and the Faculty will decide upon his acceptability. The work of examiners is supervisory merely, as question papers are sent by the Faculty and the answers returned to them for marking.

It is not required that candidates for Ph. B. or M. A. present themselves at the University; but candidates for Ph. D. must present themselves for their final examination upon one or more subjects of the course, in the months intervening between September of one year and June of the next, unless special arrangements are made for some other date. On presenting themselves, candidates must hand to the Professor in charge of the department wherein the course passed upon lies, a thesis upon some subject connected with the department, of not less than 5,000 words, for future preservation in the University library. It must be written in ink, in a book furnished by the University, or

printed. Theses in geology must include the results of an actual survey of some county, line of railroad, or river bottom, and be accompanied by maps, diagrams, and collections of rocks, fossils, and economic products.

The fees for these courses are as follows:

Matriculation,	$ 5.00
Examination for Ph. B.,	15.00
Examination for M. A.,	20.00
Examination for Ph. D.,	30.00
Diploma,	5.00

The matriculation for Ph. B. covers only that course. For M. A. and Ph. D. one fee suffices. In each instance it is payable in advance. The examination fees are payable, one-third at the first call for papers, the remainder when the last examination is taken. No charge is made for the Master's diploma when proceeding to Ph. D. The total cost of the courses is, therefore, respectively $25, $30, and $60.

The University does not confer these degrees pro honore.

Messrs. R. C. Rogers & Co., of this city, will undertake to furnish the books named in this catalogue, at special prices. The faculty have made this arrangement in response to numerous requests for a prompt service at reasonable rates.

The Faculty will thankfully receive the names of persons who might desire to become acquainted with this work.

CHARLES M. MOSS, Dean.

NON-RESIDENT COURSE LEADING TO THE DEGREE OF PH. B.

I

ENGLISH LANGUAGE AND LITERATURE

Required

MORRIS—Historical English.
SHAKSPEARE—DOWDEN'S Primer and Hamlet, Macbeth, Othello, Lear, Midsummer Night's Dream, Julius Cæsar, of ROLFE'S Edition.
SHAW—Manual of English Literature.
HILL—Principles of Rhetoric.

Elective

TYLER—History of American Literature, Vol. I.
TYLER—History of American Literature, Vol. II.
CARPENTER—English of the XIVth Century.
SPENCER—Philosophy of Style.

II

MATHEMATICS

Required

WELLS OR SCHUYLER—Algebra.
WENTWORTH OR OLNEY—Geometry.
WENTWORTH OR OLNEY—Trigonometry.
NEWCOMB AND HOLDEN—Astronomy.

Elective

BOWSER OR LOOMIS—Analytics.
BUCKINGHAM OR LOOMIS—Calculus.
SCHUYLER OR LOOMIS—Surveying.
PECK OR OLMSTED—Mechanics.

III

HISTORY AND POLITICAL SCIENCE

Required

THALHEIMER—Ancient, Medieval, and Modern History.
RIDPATH—History of the United States.
WALKER—Political Economy.
WOOLSEY—International Law.

Elective

THALHEIMER—History of England.
ANDERSON—History of France.
VAN LAUN—French Revolutionary Epoch.
KOHLRAUSCH—History of Germany.
SMITH—Students' History of Greece.
LIDDELL—History of Rome.
COOLEY.—General Principles of Constitutional Law in the United States of America.

IV

NATURAL SCIENCE

Required

GAGE—Elements of Physics.
GRAY—Botany, Manual and Lessons, or McNAB, Botany, with determination of one hundred species.*
HUXLEY AND YOUMANS—Physiology.
NORTON—Chemistry, with the Experiments.
PACKARD—Zoology.

Elective

DESCHANEL—Natural Philosophy, Parts II and III.
BESSEY—Structural Botany.
LECONTE—Geology.

V

PHILOSOPHY

Required

PORTER—Mental Philosophy.
JEVONS—Logic.
BASCOM—Ethics.
HOPKINS—Christian Evidences.

Elective

HAMILTON—Metaphysics.
COUSIN—Elements of Psychology.
MORELL OR BOWEN—History of Philosophy.
COCKER—Christianity and Greek Philosophy.
CUMMINGS—Butler's Analogy.

VI

LATIN LANGUAGE AND LITERATURE

(Optional with Greek, German, or French)

Required

HARKNESS—Grammar entire, in connection with JONES' First Lessons in Latin.
CÆSAR—Gallic War, four books.
VERGIL—Æneid, six books.
CICERO—Orations against Catiline.
HORACE—Odes, two books, and Ars Poetica.

Elective

QUINTILIAN—Institutes, Book X or XII.
TACITUS—Germania and Agricola.
CICERO—De Officiis.
SENECA—HURST and WHITING'S Selections.

VII

GREEK LANGUAGE AND LITERATURE

(Optional with Latin, German, or French)

Required

GOODWIN—Greek Grammar, omitting Prosody.
XENOPHON—Easy Selections from, by PHILLPOTTS and JERRAM, in connection with JONES' Exercises in Greek Prose.

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*A herbarium containing these determinations must be forwarded at a suitable time.

LYSIAS—Select Orations. STEVENS or WHITON.
HERODOTUS—MATHER'S Selections.
PLATO—Apology.
EURIPIDES—Alcestis.

Elective

BUCHHOLZ—Anthology from the Lyric Poets, to Pindar, omitting the Anacreontea.
XENOPHON—Memorabilia. WINANS.
HOMER—Iliad, Books I, II, III, or Odyssey, Books I, IX, X.
DEMOSTHENES—De Corona.

VIII

GERMAN LANGUAGE AND LITERATURE

(Optional with Latin, Greek, or French)

Required

OTTO OR WORMAN OR COMFORT—Grammar.
MODERN GERMAN PLAYS—Eigensinn and Einer Muss Heirathen, or Boisen's German Prose.
SCHILLER—Wilhelm Tell and Jungfrau von Orleans, or any two of Schiller's Dramas.
LESSING—Nathan der Weise, or Minna von Barnhelm and Emilia Galotti.
GOETHE—Iphigenie auf Tauris and Faust, Part I.

Elective

GOSTWICK AND HARRISON—Outlines of German Literature.

IX

FRENCH LANGUAGE AND LITERATURE

(Optional with Latin, Greek, or German)

Required

BOCHER—Grammar.
BOCHER—College Series of Modern French Plays (two selections).
CORNEILLE—Le Cid.
RACINE—Athalie.
MOLIERE—Le Misanthrope.
PYLODET—La Litterature Francaise Classique.

Elective

PYLODET—La Litterature Francaise Contemporaine.

POST-GRADUATE COURSES LEADING TO THE DEGREES OF M. A. AND PH. D.

LATIN LANGUAGE AND LITERATURE

I

LIVY—Book I.
OVID—Metamorphoses.
TEUFFEL—History of Roman Literature, Vol. I, pp. 1-102.
MOMMSEN—History of Rome, Books I and II.
KEIGHTLEY—Mythology of Ancient Greece and Italy.

Works for Reference

LEWIS, G. C.—Credibility of Early Roman History.
SCHŒNFELD, P.—Ovid's Metamorphoses in ihrem Verhæltniss zur antiken Kunst.
GLADSTONE—Juventus Mundi, Ch. VII-IX.
MULLER, M.—Science of Language, Second Series.
CORSSEN—Aussprache, Vokalismus, und Betonung der Lateinischen Sprache.

II

ALLEN—Early Latin Remnants.
PLAUTUS—Captivi and Trinummus.
TERENCE—Adelphi.
TEUFFEL—History of Roman Literature, Vol. I, pp. 103-226.
MOMMSEN—History of Rome, Books III and IV.
KLEIN—History of the Roman Drama.
RIBBECK, O.—Roman Tragedy during the Republic.
**Thesis*—Plautus and Terence Compared.

III

CICERO—De Oratore.
QUINTILIAN—Institutiones Oratoriæ, Books X and XII.
HORACE—Epistle to the Pisos.
TEUFFEL—History of Roman Literature, Vol. I, pp. 227-384.
MERIVALE—History of the Romans under the Empire, Chap. I-XXII.
HADLEY—Lectures on Roman Law.
Original Latin Oration.

Works for Reference

FROUDE—Cæsar, A Sketch.
NAPOLEON—History of Julius Cæsar.
MARQUART AND MOMMSEN—Handbuch der rœmischen Alterthuemer, Vol I, II, IV, V.

IV

HORACE—Odes and Satires.
CICERO—De Officiis; De Amicitia; De Senectute; or
PLINY—Select Letters.
TEUFFEL—History of Roman Literature, Vol. I, pp. 385 to end.
MERIVALE—History of the Romans under the Empire, Chap. XXIII-XLI.
HARRISON—Laws of the Latin Language.
GUHL AND KONER—Roman Life.
Composition of three Latin Odes in Horatian Metres; or a Thesis on the Metrical Differences of Latin through its Successive Periods, including the Mediæval.

Works for Reference

FRIEDLENDER—Sittengeschichte Roms.
SCHMIDT'S Introduction to the Rhythmic and Metric of the Classical Languages.

V

TACITUS—Histories, Books I-III.
JUVENAL—Satires, I-VII; X-XV.
TEUFFEL—History of Roman Literature, Vol. II, pp. 1-205.
MERIVALE—History of the Romans, Chap. XLII-LVI.
RAMSHORN—Latin Synonyms.
BECKER—Gallus.
**Thesis*—The Satires of Horace and Juvenal compared.

For Reference

LECKY—History of European Morals, Vol. I, Chap. II.

VI

SENECA—Select Moral Essays. HURST and WHITING.
CICERO—De Natura Deorum.
TERTULLIAN—Select Works, or Latin Hymns. MARCH.
TEUFFEL—History of Roman Literature, Vol. II, pp. 206 to end.
MERIVALE—History of the Romans, Chap. LVII-LXVIII.
UHLHORN—Conflict of Christianity and Paganism.

Works for Reference

EBERT, AD—Geschichte der Christlich-Lateinischen Literatur.
BURN—Rome and the Campagna.
WITHROW—The Catacombs of Rome.
CONTEMPORARY REVIEW (Jan., 1881,) Latin Christian Inscriptions.
FARRAR—Seekers after God.
UEBERWEG'S History of Philosophy, §§ 52-61.

In addition to written translations of select passages from the classics enumerated in the above course, sight translations from Latin into English and from English into Latin will be required of candidates for M. A. or Ph. D. ROBY'S or MADVIG'S Grammar and ARNOLD'S Prose Composition must be finished by the end of unit III.

Candidates for M. A. will be required to finish TEUFFEL'S History of Roman Literature, and MERIVALE'S History of the Romans under the Empire.

GREEK LANGUAGE AND LITERATURE

I

HOMER—The Phæacians. MERRIAM.
HESIOD—Theogony; Works and Days.
ANTHOLOGY aus den Lyrikern der Griechen. BUCHHOLZ.
GLADSTONE—Juventus Mundi, Chap. X-XI.
MAHAFFY—History of Classical Greek Literature, Chap. I-XIII, with appendices *a* and *b*.
CURTIUS—History of Greece, Vol. I.

Works for Reference

MULLER—Chips from a German Workshop, Vol. II, Essays I-III.
WHITNEY—Oriental and Linguistic Studies, Chap. IX-XII.

TYLER—Theology of the Greek Poets.
SYMMONDS—The Greek Poets.
MAHAFFY—Social Life in Greece.
SCHLIEMANN—Troja.

II

EURIPIDES—Alcestis and Medea.
SOPHOCLES—Œdipus Rex.
AESCHYLUS—Prometheus Bound or Persians.

ARISTOPHANES—Clouds or Birds.
CURTIUS—History of Greece, Vol. III.
MAHAFFY—History of Classical Greek Literature, Chap. XIV-XXII.
DONALDSON—Theatre of the Greeks.

III

HERODOTUS—Books VI-IX.
THUCYDIDES—Book II, Chap. I-XXVIII; Book III, Chap. XVIII-XXVI; Book IV, Chap. I-XXIV; XXVI-XLII; Books VI and VII.

CURTIUS—History of Greece, Vol. II.
MAHAFFY—History of Classical Greek Literature, Vol. II, parts relating to the historians.

IV

Attic Orators. JEBB.
DEMOSTHENES—Hellenic Orations. FLAGG.

CURTIUS—History of Greece, Vols. IV and V.
MAHAFFY—History of Classical Greek Literature, Vol. II, parts relating to the orators.
MACMAHON—Bredif's Demosthenes.

V

PLATO—Phaedo; Laws, Book X.
ARISTOTLE—Politics, Books I, III, IV.
MAHAFFY—History of Classical Greek Literature, Vol. II, parts relating to philosophers.
UEBERWEG—History of Philosophy, Vol. I.
COCKER—Christianity and Greek Philosophy.

VI

POLYBIUS—Books III, IV, V.
LUCIAN—Selections. WILLIAMS.
ARRIAN—Anabasis, Books I, II, III; and Book VII, Chap. XXIV-XXX.
PLUTARCH—Themistocles and Pericles.
Contemporaneous History.

The numerals are in all cases inclusive.

Candidates for either M. A. or Ph. D. will be required to translate passages of Greek into English, and English into Greek, at sight.

Accessory knowledge to the extent of the contents of the following works will be deemed necessary, viz.: Goodwin's Modes and Tenses, Kuehner's Larger Grammar, Murray's Mythology, Bœckh's Public Economy of the Athenians, Guhl and Koner's Greek and Latin Life. In prose composition, Sidgwick's larger work is recommended,

MATHEMATICS

I

General Theory, Composition, and Solution of Equation. Equidifferent equimultiple, recurring, and harmonic Series. Formulas for Permutations, Combinations, and Logarithms. Continued Fractions and Probabilities. Solid and Spherical Geometry.

THOMPSON AND QUIMBY; FICKLIN; GREENLEAF; SCHUYLER; TAPPAN; CHAUVENET.

II

General Geometry. Trilinear and Tangential Co-ordinates. General Properties of Conics. The Equations of Higher Plane Curves, and the Properties of Plane Loci, and Loci in Space.

RAY; OLNEY.

III

General Principles of the Differential and Integral Calculus, including Maxima and Minima, the Calculus of Variations, the Rectification of Curves, the Quadrature of Areas, of Surfaces of Revolution, and the Cubature of Volumes of Revolution.

BUCKINGHAM; RAY; TODHUNTER.

IV

Mechanical Philosophy, including Statics and Dynamics of Solids, Liquids, and Gases, and the Mathematical Principles of Acoustics and Optics.

OLMSTEAD; BARTLETT; PARKINSON.

V

Historical, descriptive, physical, spherical, and practical Astronomy, involving History of Astronomy, general discussion of the Principles and Laws of the Science, the Theory and Computation of Orbits, and general discussion of the Problems of Longitude, Latitude, Eclipses, Time, and Tides.

NORTON; CHAUVENET; NEWCOMB; GRANT.

VI

The Philosophy of Mathematics, involving a discussion of the Methods of Exhaustion, of Infinitesimals, and Indivisibles.

BLEDSOE; COMPTE.

ESTHETICS AND HISTORY OF THE FINE ARTS

I

DAY—Esthetics.
TAINE—Lectures on Art.
FERGUSSON—History of Architecture, Abridged.
SCHLIEMANN—Troja.
DYER—Pompeii.

II

LUEBKE—History of Sculpture.
GRIMM—Life of Michael Angelo.
CICOGNARA—Life of Canova. Bohn Ed.
PLON—Life and Works of Thorwaldsen.
LUEBKE—Ecclesiastical Art in Germany During the Middle Ages.

III

WOLTMANN AND WOERMANN—History of Painting.
JARVES—Art Studies and The Old Masters of Italy.
WOLTMANN—Holbein and His Time.
SHELDON—American Painters.

Books which may be read with this course

HARE—Walks in Rome and Days Near Rome.
WITHROW—Catacombs of Rome.
LESSING—Laocoon.
RUSKIN—Stones of Venice.
CLEMENT—Legendary and Mythological Art.
JAMESON—Legends of the Madonna.

ANCIENT AND MEDIEVAL HISTORY

I

KENRICK—Ancient Egypt.
RAWLINSON—Five Great Monarchies.
GROTE—History of Greece, first forty-three Chapters, omitting Chap. XVII-XXI.
MOMMSEN—History of Rome, Book I.

II

GROTE—History of Greece, Chap. XLIV-XCVIII.
MOMMSEN—Rome, Books II-III.
CURTIUS—History of Greece, Book III, Chap. III, and Book VII, Chap. II.
UEBERWEG—History of Philosophy, Vol. I.

III

MAHAFFY—Social Life in Greece.
MOMMSEN—History of Rome, Books IV-V.
HADLEY—Roman Law.
CRUTTWELL—History of Roman Literature.
FREEMAN—History of Federal Governments.
VON REBER—History of Ancient Art.

IV

MERIVALE—History of the Romans, Vol. I, II, V, VI, VII.
GIBBON—Decline and Fall of the Roman Empire, Vol. I-II.
RAWLINSON—Sixth Great Monarchy.

V

GIBBON—Decline and Fall of the Roman Empire, Vol. III-IV.
NEANDER—Church History, Vol. I.
STANLEY—History of the Eastern Church.
FERGUSSON—History of Architecture, Abridged Edition.
WITHROW—Catacombs of Rome.

VI

GIBBON—Decline and Fall of the Roman Empire, Vol. V-VI.
NEANDER—Church History, Vol. II.
HALLAM—Middle Ages, Chap. II-IX.
UEBERWEG.—History of Philosophy, Vol. II.
GUIZOT—History of Civilization.
SISMONDI—History of Italian Republics; or,
SPALDING—History of Italy and Italian Islands.

Books which may be read with this course

BECKER—Gallus and Charicles.
WISEMAN—Fabiola.
FELTON—Lectures on Ancient Greece.
DE QUINCEY—Homer and Homeridæ.
DANTE—Divine Comedy.
SCOTT—Quentin Durward and Talisman.
EBER—Egyptian Princess and Uarda.
BULWER—Last Days of Pompeii.
LANDOR—Pericles and Aspasia.

MODERN HISTORY

I

KNIGHT—History of England Vol. I-II.
SISMONDI—History of Literature in Southern Europe, Vol. I-II.
UEBERWEG—History of Philosophy, Vol. II.
HALLAM—Constitutional History of England.

II

KNIGHT—History of England, Vol. III-IV.
MACAULAY—History of England, Chap. I-III.
HUME—History of England, Chap. L-LIX.
KITCHEN—History of France, Vol. I-II.
FISHER—Lectures on the Reformation.
MOTLEY—Rise of the Dutch Republic.

III

KITCHEN—History of France, Vol. III.
SISMONDI—History of Literature in Southern Europe, Vol. III-IV.
GUIZOT—History of The English Revolution, 1648.
MACKINTOSH—History of the English Revolution, 1688, or
MACAULAY'S essay thereon.
VAN LAUN—The French Revolutionary Epoch.
THACKERAY—Four Georges.

IV

BANCROFT—History of the United States, Vol. I-III.
BALDWIN—Ancient America.
PRESCOTT—Ferdinand and Isabella.
SISMONDI—History of the Italian Republics; or,
SPALDING—History of Italy and Italian Islands.

V

BANCROFT—History of the United States, Vol. IV-VI.
PRESCOTT—Conquest of Mexico.
ROBERTSON—History of Charles V.
HALLAM—Middle Ages, Chap. VIII.

VI

BANCROFT—History of the United States, Vol. VII-X.
GUIZOT—History of Civilization.
IRVING—Life of Washington.
HEADLEY—The Great Rebellion.

Books which may be read with this course

SCOTT—Ivanhoe.
THACKERAY—Henry Esmond.
GEORGE ELIOT—Romola.
BULWER—Last of the Barons.
DICKENS—Tale of Two Cities.
MRS. STOWE—Minister's Wooing, and Oldtown Folks.

PHYSICS

I

Dynamics, Hydrostatics and Pneumatics

DESCHANEL—Natural Philosophy, pp. 1-239.

Heat

DESCHANEL—Natural Philosophy, pp. 241-504.
TYNDALL—Heat a Mode of Motion.
TYNDALL—On Radiant Heat.

Sound

DESCHANEL—Natural Philosophy, pp. 785-864.
TYNDALL—On Sound.

II

Light

DESCHANEL—Natural Philosophy, 865-1060.
LOMMEL—The Nature of Light.
LOCKYER—The Spectroscope.

Electricity

DESCHANEL—Natural Philosophy, pp. 505-611; 642-783.
CUMMING—Theory of Electricity.

Magnetism

DESCHANEL—Natural Philosophy, pp. 612-641.
GORDON—Electricity and Magnetism.

III

Meteorology

LOOMIS—Treatise on Meteorology.
TYNDALL—Forms of Water.

The Conservation of Energy

STEWART—The Conservation of Energy.

History of Physical Science

WHEWELL—History of the Inductive Sciences.

Science and Religion

WINCHELL—Reconciliation of Science and Religion.
GRAY—Natural Science and Religion.
COCKER—Theistic Conception of the World.

GEOLOGY

I

Dynamical Geology

LYELL—Principles of Geology (Eleventh Edition), Vol. I, pp. 321-665; Vol. II, entire.
LECONTE—Elements of Geology, pp. 1-163.
DANA—Manual of Geology, pp. 605-764.

Principles of Palaeontology

NICHOLSON—Ancient Life History of the Earth, pp. 1-61.

Chemical and Physical Mineralogy

BARKER—College Chemistry, pp. 1-86, with exercises.
E. S. DANA—Text-Book of Mineralogy, pp. 115-192.
J. D. DANA—Manual of Mineralogy (Third Edition), pp. 1-90.

Blowpipe Analysis, with actual examination of at least forty mineral species, using for reference:

E. S. DANA—Text-Book of Mineralogy.
J. D. DANA—Manual of Mineralogy.
ELDERHORST—Manual of Blowpipe Analysis (Sixth Edition), or
BRUSH—Blowpipe Analysis.

II

Lithological Geology

DANA—Manual of Geology, pp. 47-114.
DANA—Manual of Mineralogy, pp. 409-456.
LECONTE—Elements of Geology, pp. 170-225.
COTTA—Rocks Classified and Described.

Archæan Life

DANA—Manual of Geology, pp. 146-161.
NICHOLSON—Ancient Life History of the Earth, pp. 65-76.
DAWSON—The Dawn of Life.

Palæozoic Life

DANA—Manual of Geology, pp. 162-402.
NICHOLSON—Ancient Life History of the Earth, pp. 77-203.

III

Mesozoic Life

DANA—Manual of Geology, pp. 403-488.
LECONTE—Elements of Geology, pp. 404-475.
NICHOLSON—Ancient Life History of the Earth, pp. 203-284.

Cenozoic Life

DANA—Manual of Geology, pp. 488-588.
LECONTE—Elements of Geology, pp. 475-557.
NICHOLSON—Ancient Life History of the Earth, 284-374.

The Geological Succession of Species and its Bearing on the Doctrine of Derivation

DANA—Manual of Geology, pp. 381-8; 482-6; 592-604.
LECONTE—Elements of Geology, pp. 287-8; 328-33; 395; 474; 506-12.
WINCHELL—The Doctrine of Evolution.

IV

The Glacial Epoch

DANA—Manual of Geology, pp. 527-556.
GIEKIE—The Great Ice Age.

Geological Climates

DANA—Manual of Geology, pp. 352-4; 380-1; 452; 481; 590-1.
LYELL—Principles of Geology, Vol. I, pp. 172-297.
CROLL—Climate and Time.

Chemical Geology

HUNT—Chemical and Geological Essays.

V

The Coal Deposits of the United States

DANA—Manual of Geology, pp. 309-331; 351-366.
LECONTE—Elements of Geology, pp. 333-380.
MACFARLANE—Coal Regions of America.

Metalliferous Deposits

HUNT—Chemical and Geological Essays, pp. 220-238.
DANA—Manual of Mineralogy, pp. 94-187.
RAYMOND—Mineral Resources of the United States, or
WHITNEY—Metallic Wealth of the United States.

History of Geology

WHEWELL—History of the Inductive Sciences, Book XVIII.
LYELL—Principles of Geology, Vol. I, pp. 1-135.

Systematic study of any organic type, or group of organic remains, as the *Trilobita*, *Brachiopoda*, *Cephalopoda*, *Mammalia*, *Filices*, or even a more restricted group. Special works will be recommended on announcement of subject.

*Geology of Illinois

Study of the Reports of the Geological Survey.
Collection and determination of a series of fossils and rocks from the principal formations.
Construction of a Geological Map of the State, showing rock formations and hydrography by counties.

CHEMISTRY

I

General Review

ATTFIELD—Chemistry, pp. 13-368, with all the experiments.

Theoretical Chemistry

COOKE—The New Chemistry.
BARKER—College Chemistry, Part I, with the exercises.
TAIT—Recent Advances in Physical Science, Lecture XII.

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*The Geology of any other State may be substituted for that of Illinois, in which case suitable works will be recommended.

II

The Non-Metalic Elements

ROSCOE AND SCHORLEMMER—Treatise on Chemistry, Vol. I.

The Metals

ROSCOE AND SCHORLEMMER—Treatise on Chemistry, Vol. II.

III

Qualitative Analysis

FRESENIUS—Manual of Qualitative Analysis, pp. 1-319.

Analysis of Water and Soils

FRESENIUS—Manual of Qualitative Analysis, pp. 319-340.

IV

Quantitative Analysis

FRESENIUS—Quantitative Chemical Analysis, omitting Section VI.

Toxicology

FRESENIUS—Manual of Qualitative Analysis, pp. 341-361; 384-420.

V

Blowpipe Analysis

ELDERHORST—Manual of Blowpipe Analysis.
BRUSH—Blowpipe Analysis.

Spectrum Analysis

SCHELLEN—Spectrum Analysis.

VI

Chemical Technology

WAGNER—Hand-Book of Chemical Technology, pp. 1-32; 43-54; 59-72; 77-81; 87-111; 142-191; 194-210; 226-238; 268-321; 617-731.

Organic Chemistry

FRESENIUS—Quantitative Chemical Analysis, Section VI.
SCHORLEMMER—Organic Chemistry.

Candidates for Ph. D. in this course will reserve unit V for final examination.

BIOLO Y

I

Outlines of Structural Botany

GRAY—Botanical Text-Book. (Sixth Edition.)
BESSEY—Botany.

Preparation of a herbarium of three hundred native *Phanerogamia* and one hundred native *Cryptogamia*, using for determinations:

GRAY—Manual of Botany.
UNDERWOOD—Our Native Ferns.
LESQUEREUX AND JAMES—Manual of the Mosses of the United States.

II

Structural and Systematic Botany

SACHS—Text-Book of Botany.

Preparation of a series of drawings (Bristol board 8x10 inches) showing flower structure of twenty-five genera of *Phanerogamia*, and the entire structure of ten genera of *Cryptogamia*.

III

Invertebrate Structure

PACKARD—Zoology, pp. 1-388.
HUXLEY—Anatomy of Invertebrated Animals.
GEGENBAUR—Elements of Comparative Anatomy, pp. 1-407, or
SEIBOLD—Anatomy of Invertebrates.

Outlines of Embryology

PACKARD—Zoology, Chap. X, and Life Histories of Animals.
BALFOUR—Comparative Embryology, Vol. I, pp. 1-100; Vol. II, Chap. XIV-XVI; XVIII-XXI; XXIV.

Alcoholic preparation of a series of twenty-five embryos

Systematic Entomology, with named collection of two hundred species of insects, illustrating all the leading orders*

PACKARD—Guide to the Study of Insects.
HARRIS—Insects injurious to Vegetation.
The Various Smithsonian Miscellaneous Collections relating to insects.

IV

Vertebrate Structure

PACKARD—Zoology, pp. 389-630.
HUXLEY—Anatomy of the Vertebrated Animals.
GEGENBAUR—Elements of Comparative Anatomy, pp. 408-624.
MIVART—The Cat.

Elements of Osteology

FLOWER—Osteology of the Mammalia.
OWEN—The Skeleton and the Teeth.

Preparation of an entirely articulated skeleton and a series of twenty-five mammalian skulls

Systematic Ornithology, with collection and preparation of at least forty native species*

JORDAN—Manual of the Vertebrates.
COUES—Key to the Birds of North America, or
BAIRD, BREWER AND RIDGEWAY—The Birds of North America.

V

The Doctrine of Evolution

COPE—Hypothesis of Evolution, and Origin of Genera.
MIVART—Genesis of Species.
WALLACE—Natural Selection.

DARWIN—Origin of Species and Descent of Man.
HUXLEY—Origin of Species.
HÆCKEL—History of Creation.

Zoogeography

WALLACE—The Geographical Distribution of Animals.
WALLACE—Island Life.

VI

Ethnology

PESCHEL—Races of Men.
WINCHELL—Preadamites.
MCCAUSLAND—Adam and Adamite.
SOUTHALL—Recent Origin of Man.
FOSTER—Prehistoric Races of the United States.

Anthropology

TYLOR—Anthropology.
LUBBOCK—Prehistoric Times.
HUXLEY—Man's Place in Nature.
VIRCHOW—The Cranial Affinities of Man and Ape.

GENERAL REMARK.—It is expected that the determinations required in the courses in Natural Science will be deposited at the University.

POLITICAL SCIENCE

I

J. S. MILL—Political Economy.
COOLEY—Principles of Constitutional Law.
MULFORD—The Nation.

II

COSSA—Guide to the Study of Political Economy.
WOOLSEY—Political Science. (Two Vols.)
MCKEAN—Carey's Social Science.

III

PERRY—Political Economy.
MCCULLOCH—Taxation and the Funding System.
WALKER—Political Economy.
VONHOLST—Constitutional History. (Three Vols.)

IV

SMITH—Wealth of Nations.
LIEBER—Civil Liberty.
WALKER—The Wages Question.
CAIRNES—Logical Method of Political Economy.
THOMPSON—Social Science and National Economy.

V

RICARDO—Political Economy.
BAGEHOT—Physics and Politics.

BLANQUI—History of Political Economy.
THORNTON—On Labor.
ROSCHER—Political Economy.

VI

CAIRNES—Political Economy.
SPENCER—Social Statics.
WALKER—Money.
JEVONS—Money and Mechanism of Exchange.
MOFFATT—Economy of Consumption.

VII

MILL—Representative Government.
MAINE—Early History of Institutions.
PLATO—Republic.
MAY—Democracy in Europe.
KENT—Commentaries on American Law.

VIII

DE TOCQUEVILLE—Democracy in America.
WOOLSEY—International Law.
STUBBS—Constitutional History of England.
LAVELEYE—Primitive Property.
EATON—Civil Service in Great Britain.

IX

AMOS—Roman Law.
MONTESQIEU—Spirit of the Laws.
GREG—Political Problems.
BUCKALEW—Proportionate Representation.
SPENCER—Study of Sociology.

Candidates for Ph. D. must take units I-III, and either IV-VI or VII-IX, inclusive.

COURSE IN PHILOSOPHY

I

UEBERWEG—History of Philosophy, Vol. I.
LEWES—Biographical History of Philosophy, part First.
JOWETT—Plato.
COCKER—Christianity and Greek Philosophy.
Thesis—Influence of Platonism on Subsequent Philosophy.

II

UEBERWEG—History of Philosophy, Vol. II.
LEWES—Biographical History of Philosophy, part Second.
DESCARTES—Method and Meditations.
LOCKE—Essay on Human Understanding, and
COUSIN'S Review of the same.

III

HAMILTON—Metaphysics.
MILL—Examination of same.
MCCOSH—Defense of Fundamental Truth.
Thesis—Sensationalism as a factor in the Progress of Speculative Philosophy.

IV

BOWNE—Metaphysics.
JEVONS—Principles of Science.
HEGEL—Philosophy of History.
Thesis—Present State of the Idealistic Philosophy.

V

CARPENTER—Mental Physiology.
CALDERWOOD—Relation of Mind to Brain.
MAUDSLEY—Physiology and Pathology of Mind.
Thesis—The Contributions of Physiology to Psychology.

VI

WUTTKE—Christian Ethics.
SHEDD—History of Christian Doctrine.
FISHER—Supernatural Origin of Christianity.
MULFORD—The Nation.

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Modern French Plays. La Joie Fait Peur, Les Petits Oiseaux.
Pylodet's La Litterature Francaise Classique.

Martin's Human Body.
Packard's Zoology.
Newcomb & Holden's Astronomy.
Bessey's Botany.
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Walker's Political Economy.
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Dalton's Physiology and Hygiene	.84
Duff's Common School Bookkeeping	.44
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Hooker's New Natural Philosophy	.90
" " Chemistry	.90
Nordhoff's Politics for Young Americans	.75
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Green's Short History of the English People	1.20
Student's Smaller History of Rome	.60
" " " Greece	.60
" " Classical Dictionary	1.25
Skeats's Etymological Dictionary	1.25
Munson's Complete Phonographer	1.50
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